



## Original communication

## Evaluation of dental malpractice cases in Kerman province (2000–2011)



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## ABSTRACT

**Introduction:** Dental practitioners, like other health-care professionals, might engage with legal claims and be sued if patients are not satisfied with the dental treatment. The aim of this study was to provide data on dental malpractice claims in Kerman, Iran, from 2000 to 2011.

**Materials and methods:** In the present descriptive cross-sectional research, a retrospective evaluation was carried out of dental malpractice claims in Kerman, Iran, during 2000–2011, based on the decisions of expert committees in medical malpractice cases by the Kerman Legal Medicine Organization and the Medical Council of the Islamic Republic of Iran. A valid and reliable questionnaire was designed in three sections, based on previous studies. The SPSS 18 software program was used for data analysis.

**Results:** During the 11-year period, 64 decisions had been taken in relation to dental malpractices. The majority of complaints involved fixed prosthodontics and oral surgery usually by private practice and general dental practitioners. In 56.7% of clinical cases and 40% of non-clinical cases of malpractice claims, dental practitioners had been found guilty.

**Conclusions:** Like all other medical staff, dental practitioners are under the obligation to comply with the laws of the country they practice. They also have to adhere to ethical principles as well as the acceptable standards and protocols of diagnosis and treatment. These data can alert them to the need for greater care and professionalism when treating their patients.

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## 1. Introduction

Health systems, as a human society expects, are not safe all over the world. In recent years, several studies have been carried out in many health systems to identify the causes and to find an appropriate solution to reduce malpractices in health systems.<sup>1,2</sup> Malpractice refers to negligence or misconduct by a professional person, such as a lawyer, a doctor, a dentist or an accountant.<sup>1</sup>

There are many mechanisms that make health systems vulnerable to medical malpractice; for example, mention can be made of various complicated expectations from the process of providing health services for patients, co-operation of various groups in the treatment of patients, permanent day–night performance of the system leading to staff tiredness, the need for a high level of information in the health system that makes it very difficult to be up-to-date in this field and concentration and planning to offer new services to patients.<sup>3–5</sup>

Medical malpractices involve any mistake in the diagnosis, treatment or management of disease. Sometimes medical treatment does not conform to the accepted standards, leading to patient trauma and permanent deleterious injury, which can be prevented.<sup>1,2</sup>

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In fact, the major cause of medical malpractices is usually the physician's inability to live up to that level of skill, learning, care and treatment that is commonly rendered by other colleagues in the community. Complaints resulting from these malpractices comprise part of the reasons why patients sue.<sup>6</sup>

Medical malpractices represent serious problems in the health system and are a threat to patients' safety. All the patients are potentially vulnerable and medical malpractices are very costly in terms of social, economic and human aspects. According to the National Academy of Science Research Institute, the problems of medical malpractices were at the forefront of national debates in 1999. Studies show that 44,000–99,000 people die annually due to medical malpractices that are preventable.<sup>7</sup>

Many international reports about the frequency of complaints against health-care professionals in different countries reflect the reality that despite significant progress in science and new technologies in relation to diagnostic and therapeutic procedures complaints are on the increase, making it an important concern in the medical field, not only in Iran but also throughout the world.<sup>1</sup> Although this problem is rooted in the failure of doctors and dentists to establish good communication and rapport with patients, it is affected by some other factors such as the mass media, insurance companies, lawyers and legal advisers, changes in physicians' social status, large number of medical graduates and economic problems of medical professionals, encouraging them to practice high-risk activities. The increasing number of complaints is a global phenomenon, with varying degrees of severity in different countries.<sup>1,2</sup> For example, in the United States, approximately 3–4% of all doctors in different fields received complaints in 1970, which increased to 20% in 1980 and to 25% in 1990.<sup>7</sup> In Iran, too, patients' malpractice claims against doctors have increased in recent years, which has resulted not only in a lack of trust in the medical community but also in wasting of the time of people, doctors and jurisdictions.<sup>8</sup>

Dental malpractice claims are mainly due to a failure to achieve the desired therapeutic result in spite of high costs, resulting in financial loss and compensation claims. However, in addition to medical malpractices, any health-care professional might be prone to legal claims because of confidentiality matters, issuing unreal certificates and violating regulations governing the medical profession.<sup>1</sup> In the domain of professional responsibilities and obligations, dental legal claims have received less attention than medical claims because they are less important. Of course, it does not mean that dental practitioners inflict less mental or financial damage compared to medical practitioners.<sup>9,10</sup>

An investigation of dental records of 227 cases during a 5-year period by Kiani and Sheikhezadi in Tehran showed that the majority of malpractice claims involved prosthodontics, surgery, root canal treatment and implants.<sup>11</sup> There are limited studies on the prevalence of dental malpractices in Iran and so are studies on medical malpractices, despite the need for careful investigation in order to plan proper measures in future. Therefore, it requires extensive reviews to determine the mechanism of malpractices and to identify health-system weaknesses in order to improve health-system efficacy and prevent similar effects on patients. The aim of this study was to investigate dental malpractice claims in the Kerman Medical Council during 2000–2011.

## 2. Materials and methods

In this descriptive, cross-sectional retrospective study, first a researcher prepared a questionnaire which included questions based on previous studies,<sup>11,9</sup> as well as eight additional questions. The questionnaire has a classification on the basis of the demographic information (dentists and patients), allegations involved

in paid claims, treatments in paid claims by general practitioners and adverse outcomes in paid claims.

In the next step after referring to the Medical Council and Legal Medicine Organization and obtaining the consent of the authorities, all the cases raised during 2000–2011 were reviewed. In Kerman province, if a patient is discontented with a dentist, she/he can refer to Medical Council or Legal Medicine Organization for lodging a complaint. After this, the patient is referred to the dental school for a complete and accurate examination and the result is sent to the Legal Medicine Organization or Medical Council discretely. In these offices, the documents are investigated by medical commissioners and the board of magistrates under the overseership of a chairman for a decision. Consequently, the patient and his/her dentist are provided with the results. If any of them has an objection, a second complaint is made and is investigated for the second time that must lead to the final result.

The study population included all the dentists as defendants and the patients who had lodged complaints. A total of 64 files were collected by referring to the Supreme Court to gather only the dental records and to the board of magistrates to collect the closed cases. Data were classified in four categories based on the subject and were recorded in the attached form. Demographic features of dentists, including (age, sex, educational level, etc.) and also those of the patients were recorded. Then the main cause of the claims and the type of the defect were tabulated. Patient claims were also divided into non-clinical and clinical ones. All the items listed in the questionnaire were completed by a dentist and the information in the questionnaires was kept confidential. In this study, all the cases against dentists and specialists were investigated by the census method. Data were analysed by the *t*-test, the chi squared test and SPSS 18 software and presented as frequency. Statistical significance was defined at  $P < 0.05$ .

## 3. Results

This research work was done in Kerman, the largest province of Iran located 895 km south of the capital. Its population is about 2,045,321 based on the census of 2011. A total of 945 dentists (584 male and 361 female) are working, including 693 (73.3%) dentists in private institutes and the other (26.7%) working in the public sector.

The Ethical Committee of Kerman University of Medical Science approved this study with code number: K/541. All of the forms were designed nameless and all information kept secret and was analysed only from a statistical point of view.

Between 2000 and 2011, 1127 medical complaint cases were heard in the Kerman Legal Medical Council, of which 64 cases (5.7%) were related to dentistry. This study shows an increasing trend during this 12-year period, from two to 15 cases. It means that there were only two cases with complaint in the year 2000 such that in 2011, the records show about 15 cases of complaints.

The mean age of people employed in the dental profession was  $32.9 \pm 8.6$  years, with a range of 28–61 years. Table 1

**Table 1**  
Demographic characteristics of dentists.

Variable		No	%
Sex	Male	90.6	58
	Female	6	9.4
Education	Specialist dentist	5	7.8
	General dentist	58	82.2

presents the demographic data of dental practitioners who have been sued due to malpractices. Most complaints involved males and there was a significant relationship between the gender of caregivers and the number of complaints ( $P = 0.001$ ). Most of the complaints involved general dental practitioners and dental specialists, respectively, and there was a significant relationship between the number of cases and educational level of caregivers ( $P = 0.02$ ).

Most cases (80.7%) were about the private sector. The mean age of the complainants was  $35.51 \pm 8.1$  years (ranging from 22 to 56 years) (Table 2). There were 58 cases (90.6%) in relation to clinical services and six cases (9.4%) against non-clinical ones. In this study, only in three cases (4.7%) informed written consent had been obtained or counselling had been performed before the treatment and with 64 dentists (100%) being found guilty. None of the cases had been referred to the Supreme Court. The results of this study showed that the majority of clinical complaint cases involved endodontic therapy ( $n = 22$ ; 34.4%), followed by prosthetics ( $n = 18$ ; 28.1%), operative dentistry ( $n = 13$ ; 20.3%), surgery ( $n = 9$ ; 13.5%) and orthodontics ( $n = 2$ ; 3.1%) as follows:

### 3.1. Endodontics

Lack of sufficient attention to the patient during the procedure; working with non-standard devices such as defective files; inadequate precautions to prevent injury; anaesthesia problems; and inappropriate procedure (inappropriate and wrong treatment of tooth).

### 3.2. Prosthetics

Insufficient measures to prevent injury; changing the requested treatment; malpractice in the treatment of patients with medical problems; and lack of sufficient skill.

### 3.3. Oral and maxillofacial surgery

Treatment of the wrong tooth; inappropriate method of treatment; malpractices leading to paraesthesia; malpractices in relation to the incidence of complications; and insufficient service.

### 3.4. Restorative dentistry

Malpractices in composite/amalgam restorations; treating the wrong tooth; adverse drug reactions; and swallowing foreign bodies.

**Table 2**  
Demographic characteristics of patients.

Variable	Male	Female	All
Mean age (years)	$41.9 \pm 9.7$	$30.25 \pm 5.3$	$35.51 \pm 8.1$
Gender N (%)	20 (31.2)	44 (68.8)	64 (100)
Nationality N (%)			
Iranian	19 (95)	42 (95.5)	61 (95.3)
Non- Iranian	1 (5)	2 (4.5)	3 (4.7)
Education N (%)			
Illiterate	1 (1.6)	2 (3.1)	3 (4.7)
Diploma	12 (18.8)	33 (51.5)	45 (70.3)
Advanced Diploma	5 (7.8)	6 (9.4)	11 (17.2)
Bachelor	2 (3.1)	3 (4.7)	5 (7.8)

**Table 3**  
Allegations involved in paid claims.

Allegations involved in paid claims	No. of cases	%
Failure to treatment	17	26.6
Neglection	2	3.1
Lack of skill	5	7.8
Equipment failure	6	9.4
Alteration of treatment records	4	6.2
Poor communications with patient's	8	12.4
Failure to meet state	5	7.8
Inappropriate procedure	10	15.6
Treatment of wrong tooth	2	3.1
Failure to refer	2	3.1
Anaesthesia complications	2	3.1
Failure to appropriately treat medically compromised patients	1	1.6
Total	64	100

### 3.5. Orthodontics

Misdiagnosis and inappropriate method; inappropriate treatment; insufficient attention to the patient in relation to treatment; and lack of sufficient skill.

Table 3 presents the main causes of compensation claims. Most complaint cases involved treatment failure, inappropriate procedure, poor communication and rapport against patients.

The treatments involving compensation claims are presented in Table 4. The majority of the treatments included endodontic retreatment, restorations and dentures. The adverse outcomes included in compensation claims were failed root canal treatment, lost tooth/teeth and corrective dental treatment (Table 5).

## 4. Discussion

Like other specialists, dental practitioners try to restore their patients' health. Despite all their efforts, adverse effects might occur during the treatment, which are sometimes preventable. However, medical malpractices in some cases lead to patients filing complaints; in such cases, dental practitioners face legal action because of medical malpractice. Medical malpractice means a medical care that does not conform to the accepted standards and might lead to deleterious injuries. In fact, medical malpractice usually occurs because of the inability of physicians to apply that degree of skill, care and treatment that is commonly applied by other colleagues in the same field. Medical malpractice has been the main reason for medical legal actions in recent years.<sup>6,12</sup>

International reports show that despite significant progress in science and new technologies in the diagnosis and treatment of medical conditions, the rate of complaints due to medical

**Table 4**  
Treatments involved in paid claims by general practitioners.

Treatment	No. of cases	%
Crown and Bridge	11	17.2
Dentures	6	9.4
Root canal treatment	4	6.2
Re Root canal treatment	21	32.8
Simple extractions	4	6.2
Surgical extractions	4	6.2
Orthodontics	2	3.1
Restorations	12	18.7
Total	64	100

**Table 5**  
Adverse outcomes involved in paid claims.

Adverse outcomes	No. of cases	%
Failed root canal	19	29.7
Corrective dental treatment	10	15.6
Parasthesia/nerve injury	2	3.1
Swallowed object	2	3.1
Pain	6	9.4
Adverse drug reaction	2	3.1
Cosmetic failure	4	6.2
Bite difficulty	9	14.1
Lost tooth or teeth	10	15.6
Total	64	100

malpractices has had an increasing trend.<sup>13</sup> Studies in Iran, too, have shown a growing rate of judicial proceedings in recent years.<sup>11</sup> The most probable explanation for this increase is the increasing number of practicing dentists who graduate in this field, leading to an increase in the number of treatment procedures and malpractices. In addition, an increase in population on the one hand and an increase in patients' awareness about their rights on the other might be other reasons for the increase in patient claims.

This is the first study on patient claims against dental practitioners in Kerman. Of 1127 cases related to medical malpractices, reviewed in Kerman Medical Council and Legal Medicine Organization, 64 cases (5.7%) involved dentistry. The prevalence of patient claims varies around the world. Ozdemir and colleagues reported that between 1991 and 2000, 1548 decisions were made by the High Health Council (HHC), 14 (0.9%) of which were related to dentistry.<sup>14</sup> In this study, the average annual rate of dental malpractice claims was reported to be 0.9 in 100,000, which is similar to the results of a research conducted by Kiani and Sheikhezadi.<sup>11</sup> The study conducted by Milgrom and colleagues showed that between 1988 and 1992 almost 25% of the dentists had at least one patient filing a complaint to the insurance office.<sup>15</sup>

Now, these complaints have been doubled and paid compensations have increased nearly fivefold.<sup>16</sup> Many factors can affect the frequency of claims in various societies, including the number of specialists and general dental practitioners, type of subspecialty field, dentist's skill and ability to resolve conflicts, level of dental service use, treatment costs, system of compensation payments, patients' high expectations of the results of treatment, psychological factors and the population's level of knowledge about legal malpractice complaints.<sup>17–20</sup> Therefore, the number of complaints can be very different in various countries. On the other hand, statistics show that medical malpractices are few and there are some similarities and differences between different countries. In the United States of America and many European countries, dental malpractice claims statistics are available only through insurance companies and these companies are not expected to disclose information because of competing interests. This study showed most complaints involved clinical practice and male dental practitioners, consistent with a study by Kiani and Sheikhezadi.<sup>11</sup>

The mean age of the patients was  $35.51 \pm 8.1$  years, which is expected because most of the population is under 40 years of age. Women sued more than men (68.8%), which is similar to the results of a study by René and Owall<sup>21</sup> and is different from the results of a study by Kiani and Sheikhezadi.<sup>11</sup> This might be explained by the fact that women use dental services more than men in Kerman; therefore, they face a greater risk of treatment failure or malpractice.

Almost half of the dental practitioners, against whom complaints had been lodged in a survey conducted by the medical and forensic staff, had been acquitted, consistent with other studies.<sup>8,12,13</sup> However, Lopez-Nicolas et al. reported lack of informed consent in 48% of cases.<sup>22</sup> These include cases where the diagnosis or treatment of the dental condition had been carried out in accordance with the standards or informed consent had been obtained from patients before treatment. The importance of obtaining consent on a plan before initiating the procedure shows that more attention and respect for standards is necessary. In Iran and in many other countries, informed consent just runs before the treatment and no doubt dental practitioners do not obtain patient consent in writing before the dental treatment and in case of any failure they must be held accountable.<sup>12,15,22</sup>

The responsibility of dentists to obtain informed consent from patients may vary in different countries. However, in general, if there is a possibility that a potentially serious injury might occur, including complications of periodontal surgery, informed written consent must be obtained. Of course, a lecture course is not required in comprehensive dentistry, but the dentist should weigh the benefits of treatment in cases of danger against consequences of delaying treatment and explain any alternative treatment.<sup>23,24</sup>

This study showed that most cases involved the field of endodontics (34.4%), prosthodontics (28.1%), operative dentistry (20.3%), surgery (13.5%) and orthodontic treatment (3.1%).

Although malpractice might occur in all the practical fields of dentistry, most of these malpractices comprise only a limited number of treatment modalities.<sup>25–27</sup> In Iran, like other countries, some dental branches are involved more than others.

Kiani and Sheikhezadi<sup>11</sup> reported that the majority of clinical complaints involved fixed prosthodontics (27.8%), oral surgery (23.5%), endodontics (16.6%), periodontics (2.5%) and operative treatment (13%). Hurly et al., in a 5-year review of dental records in 2006, reported that patient claims were associated with the amount of dental work in the following order: fixed prosthodontics (28%), endodontic treatment (17%), operative dentistry (16%), diagnostics (9%), oral surgery (9%), periodontics (7%) and orthodontics (4%).<sup>28</sup>

A study conducted by Mellor et al. showed that implant and oral surgery are involved in more patient claims compared to other disciplines.<sup>29</sup> The study by Rene and Owall in Sweden also showed that prosthodontics is involved in patient claims more than other discipline.<sup>21</sup> Ozdemir et al. reported that surgical, prosthetic and endodontic treatments have the highest rate of patient claims.<sup>14</sup> In addition, Lopez-Nicolas et al. showed that the majority of clinical complaint cases involved surgery, 20 cases (23.80%); prosthetic, 36 cases (42.85%); and endodontics, 28 cases (33.33%).<sup>22</sup>

Almost in all the previous studies prosthodontics has ranked first.<sup>11,21,22,28,30</sup> In the present study, prosthodontics ranked second after endodontics. One reason might be the fact that implant treatment is expensive and one of the most sophisticated treatments in which dental practitioners have to co-operate with dental technicians, leading to increased malpractice in comparison with other dental disciplines. Most complaints were related to the poor working conditions, treatment malpractices and malfunctioning equipment. The patients did not have any complaints in relation to financial issues, wrong diagnosis, failure to obtain patient consent and failure to request diagnostic radiographs for dental procedures.<sup>11</sup>

In the study conducted by Ozdemir et al., complaints included the treatment malpractices, malpractice in diagnosis, lack of consultation, not obtaining informed consent and lack of follow-up.<sup>14</sup> Kiani and Sheikhezadi also showed that most complaints involved the treatment of malpractice, malpractice in diagnosis,

treatment of the wrong tooth and complications of anaesthesia.<sup>11</sup> In a study carried out by Bolandpayeh et al., the most frequent reasons for patients filing complaints at the Medical Council were dissatisfaction with prosthetic appliances, underfilled root canals, dissatisfaction with tooth extractions, complete dentures, outcome of orthodontic treatment, surgical procedures, dental implants and misconduct on behalf of the dentist, in descending order.<sup>20</sup> The most frequent problems created for patients were the need for endodontic re-treatment and also the correction of the treatment, fractured teeth and masticatory problems, in descending order. This is consistent with the results of a study by Kiani and Sheikhezadi.<sup>11</sup>

Many complaint cases were against private offices, which might be attributed to the high cost and a higher socioeconomic level of patients; in this context, most patients expect these offices to offer high-quality treatment procedures. Although compared with developed countries, dental costs are not high in Iran; the cost is much higher than the cost of a visit to a general practitioner and even a specialist. In addition, the state insurance usually does not cover most dental treatment costs; therefore, patients must pay the costs directly while their income is not sufficient. Since complaints are usually resolved by an official review board, complaints against the public clinics are less numerous.

The procedures that had to be carried out to restore patient health included endodontic re-treatment, dental crowns and bridges and restorative procedures, consistent with the results of studies carried out by Kiani and Sheikhezadi, Ozdmer et al., Mellor et al. and Rene and Owall.<sup>11,14,21,29</sup>

Corrective dental treatment is established as an undesirable consequence of the compensation claim. In this context, in some cases it might not be possible to correct the adverse consequences of treatment procedures for compensation. Although teeth, like all parts of the body, are eligible for blood money according to law, if all the teeth are missing whole human blood money is given to the patient and there are certain compensation payments for every tooth. For example, blood money of anterior teeth is double that of posterior teeth.<sup>31</sup> Blood money is money or some sort of compensation paid by an offender or his family group to the family or kin group of the victim. In Islamic terms, the amount of blood money varies from country to country and from case to case.

Finally, it seems that dental practitioners are liable for the injuries and damage inflicted during the investigation, diagnosis and treatment. If during the investigation there is a malpractice or a wrong function, such problems which might seem trivial and insignificant will be lodged as complaints and might lead to the loss of a lot of time and might entail spending large amounts of money.

## 5. Conclusion

Like all medical professionals, dental practitioners have to comply with legal regulations in the country. They also must adhere to ethical principles and acceptable standards during diagnosis and treatment. These data can serve as a warning to dental practitioners to exercise more care and pay more attention to professional ethics and conduct in dental procedures.

### Conflict of interest

None declared.

### Funding

None declared.

### Ethical approval

None declared.

## Appendix A

Year:

Data collection Form

**Dentist** : \_\_\_\_\_

**Gender:** Male ☐ Female ☐ **Age:** \_\_\_\_\_

**Specialist** ☐ **General** ☐

**Department:** ☐ Oral and maxillofacial surgery ☐ Oral and maxillofacial pathology ☐ Endodontics  
☐ Oral medicine ☐ Oral and maxillofacial radiology ☐ Pediatric dentistry ☐ Periodontic ☐ Prosthetics  
☐ Restorative Dentistry ☐ Orthodontics

**Type of procedure:** Clinical ☐ Non clinical ☐

**Patient**

**Gender:** Male ☐ Female ☐ **Age:** \_\_\_\_\_ **Nationality:** Iranian ☐ Non-Iranian ☐

**Education:** Illiterate ☐ Diploma ☐ Advanced Diploma ☐ Bachelor ☐

**Allegations involved in paid claims**

☐ Failure to treatment  
☐ Neglection  
☐ Lack of skill  
☐ Equipment failure  
☐ Alteration of treatment records  
☐ Poor communications with patient's  
☐ Failure to meet state  
☐ Inappropriate procedure  
☐ Treatment of wrong tooth  
☐ Failure to refer  
☐ Anesthesia complications  
☐ Failure to appropriately treat medically compromised patients

**Treatments involved in paid claims by general practitioners**

☐ Crown and Bridge  
☐ Dentures  
☐ Root canal treatment  
☐ Re Root canal treatment  
☐ Simple extractions  
☐ Surgical extractions  
☐ Orthodontics  
☐ Restorations

**Adverse outcomes involved in paid claims**

☐ Failed root canal  
☐ Corrective dental treatment  
☐ Parasthesia/ nerve injury  
☐ Swallowed object  
☐ Pain  
☐ Adverse drug reaction  
☐ Cosmetic failure  
☐ Bite difficulty  
☐ Lost tooth or teeth

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